169

TABLE OF OFFSETS FOR SIDE BLOCKS AND BILGE KEEL
"A" DOCKING POSITION – AFTER SIDE NO. 1 BLOCK 83'-4" FROM STERN REF POINT

SIDE OF SHIP & BLK NO.	FWD OF STERN REF POINT	POINT "A" HALF BREADTH	POINT "A" HEIGHT	POINT "B" HALF BREADTH	POINT "B" HEIGHT	POINT "C" HALF BREADTH	POINT "C" HEIGHT	BEVELING IN 18" FOR A B C	BILGE KEEL DIM "D"	BILGE KEEL DIM "E"
P 1	83'-4"	6'-6"	0-9-2	5'-3"	0-7-1	7'-9"	0-11-3	0°	–	
S 1			0-9-2		0-7-1		0-11-3		–	
P 2	91'-4"	6'-6"	0-9-2	5'-3"	0-7-1	7'-9"	0-11-3	0°	–	
S 2			0-9-2		0-7-1		0-11-3		–	
P 3	99'-4"	6'-6"	0-9-2	5'-3"	0-7-1	7'-9"	0-11-3	0°	–	
S 3			0-9-2		0-7-1		0-11-3		–	
P 4	107'-4"	6'-6"	0-9-2	5'-3"	0-7-1	7'-9"	0-11-3	0°	–	
S 4			0-9-2		0-7-1		0-11-3		–	
P 5	115'-4"	8'-0"	0-11-7	6'-9"	0-9-7	9'-3"	1-1-7	0°	–	
S 5			0-11-7		0-9-7		1-1-7		–	
P 6	123'-4"	8'-2"	1-0-3	6'-11"	0-9-14	9'-5"	1-1-11	0°	–	
S 6			1-0-3		0-9-14		1-1-11		–	
P 7	131'-4"	8'-2"	1-0-12	6'-11"	0-10-12	9'-5"	1-2-11	3/16"	–	
S 7			1-0-12		0-10-12		1-2-11		–	

TABLE OF OFFSETS FOR SIDE BLOCKS AND BILGE KEEL
"B" DOCKING POSITION – AFTER SIDE NO. 1 BLOCK 86'-4" FROM STERN REF POINT

SIDE OF SHIP & BLK NO.	FWD OF STERN REF POINT	POINT "A" HALF BREADTH	POINT "A" HEIGHT	POINT "B" HALF BREADTH	POINT "B" HEIGHT	POINT "C" HALF BREADTH	POINT "C" HEIGHT	BEVELING IN 18" FOR A B C	BILGE KEEL DIM "D"	BILGE KEEL DIM "E"
P 1	86'-4"	6'-6"	0-9-2	5'-3"	0-7-1	7'-9"	0-11-3	0°	–	–
S 1			0-9-2		0-7-1		0-11-3		–	–
P 2	94'-4"	6'-6"	0-9-2	5'-3"	0-7-1	7'-9"	0-11-3	0°	–	–
S 2			0-9-2		0-7-1		0-11-3		–	–
P 3	102'-4"	6'-6"	0-9-2	5'-3"	0-7-1	7'-9"	0-11-3	0°	–	–
S 3			0-9-2		0-7-1		0-11-3		–	–
P 4	110'-4"	6'-6"	0-9-2	5'-3"	0-7-1	7'-9"	0-11-3	0°	–	–
S 4			0-9-2		0-7-1		0-11-3		–	–
P 5	118'-4"	8'-2"	0-11-9	6'-11"	0-9-9	9'-5"	1-1-9	0°	–	–
S 5			0-11-9		0-9-9		1-1-9		–	–
P 6	126'-4"	8'-2"	1-0-3	6'-11"	0-9-14	9'-5"	1-1-11	0°	–	–
S 6			1-0-3		0-9-14		1-1-11		–	–
P 7	134'-4"	8'-2"	1-1-2	6'-11"	0-11-2	9'-5"	1-3-1	1/4°	–	–
S 7			1-1-2		0-11-2		1-3-1		–	–

TABLE OF DISPLACEMENT & OTHER PROPERTIES FOR DOCKING
NO CORRECTION FOR TRIM

MEAN DRAFT (FEET)	△ (LT) S.W.	KM (FEET)	LCB REF FP (FEET)	LCB REF SRP (FEET)	LCF REF SRP (FEET)	LCF REF FP (FEET)	MT1" (FT-LT/IN)	TPI (LT/IN)
11.50	1,528	22.29	98.56	108.78	104.25	103.09	179.3	15.80
12.00	1,626	22.18	99.04	108.30	105.60	101.74	192.0	16.20
12.50	1,727	22.12	99.42	107.92	107.06	100.28	205.9	16.64
13.00	1,830	22.00	99.92	107.42	108.50	98.84	219.8	17.03
13.50	1,931	21.84	100.42	106.92	109.61	97.73	231.1	17.33
14.00	2,036	21.67	100.91	106.43	110.07	97.27	237.6	17.52
14.50	2,141	21.52	101.38	105.96	110.57	96.77	244.2	17.70
15.00	2,250	21.42	101.83	105.51	111.13	96.21	251.9	17.90
15.50	2,357	21.31	102.26	105.08	111.54	95.80	258.5	18.05
16.00	2,468	21.18	102.67	104.67	111.76	95.58	263.7	18.18

LIST OF ALL ITEMS AND OPENINGS IN SHELL BELOW 18' WL

NO.	SERVICE	SIZE OF OPENING IN SHELL	SIDE OF SHIP	DIST FWD	DIST AFT	FR NEAR CTR	FWD OF STERN REF POINT	HGT ABV KEEL TO ℄ OF OPENING	DISTANCE OFF ℄ SHIP
1	S.W. DISCH MCHRY COOLING	4" DIA	P	6'-5"	–	39	145'-5"	16'-10"	20'-9"
2	SEWAGE OVBD DISCH	4" DIA	S	–	32"	39	136'-4"	15'-0"	21'-0"
3	BILGE & BALLAST OVBD DISCH	6" DIA	P	–	6"	44	128'-6"	15'-6"	21'-0"
4	S.W. DISCH MCHRY COOLING	8" DIA	P	–	35.75"	45	124'-3/4"	17'-6"	21'-0"
5	S.W. DISCH MCHRY COOLING	8" DIA	P	–	9"	60	96'-3"	15'-8"	21'-0"
6	BILGE & BALLAST OVBD DISCH	6" DIA	P	8"	–	63	91'-8"	17'-0"	21'-0"
7	S.W. DISCH MCHRY COOLING	4" DIA	P	12"	–	70	78'-0"	15'-6"	21'-0"
8	SPEED LOG	2-3/8" DIA	S	7"	–	19	179'-7"	0'-0"	6"
9	TRANSDUCER	6" DIA	S	10"	–	29	157'-10"	0'-0"	12"
10	TRANSDUCER	10-3/4" DIA	CL	10"	–	33	149-10"	0'-0"	0'-0"
11	OPENING TO SEACHEST	40" X 48"	P/S	–	10"	53	110'-2"	22-7/16"	12'-6"
12	DOCKING PLUG	1-1/2" DIA	S	6"	–	11	195'-6"	40"	13-1/2"
13	DOCKING PLUG	1-1/2" DIA	P/S	4"	–	29	159'-4"	1"	16"
14	DOCKING PLUG	1-1/2" DIA	P/S	4"	–	39	139'-4"	19"	8'-8"
15	DOCKING PLUG	1-1/2" DIA	S	4"	–	39	139'-4"	0'-0"	6"
16	DOCKING PLUG	1-1/2" DIA	S	10"	–	47	121'-10"	0'-0"	6"
17	DOCKING PLUG	1-1/2" DIA	S	10"	–	66	85'-10"	0'-0"	6"
18	DOCKING PLUG	1-1/2" DIA	P/S	4"	–	69	79'-4"	9-1/2"	6'-0"
19	DOCKING PLUG	1-1/2" DIA	P/S	–	8"	75	66'-4"	26"	11'-0"
20	DOCKING PLUG	1-1/2" DIA	S	–	8"	75	66'-4"	6"	6"
21	DOCKING PLUG	1-1/2" DIA	P	–	8"	77	62'-4"	14"	18"
22	DOCKING PLUG	1-1/2" DIA	P/S	–	8"	91	34'-4"	7'-7"	18"
23	DOCKING PLUG	1-1/2" DIA	S	–	8"	104	8'-4"	17'-1/2"	6"
24	DOCKING PLUG	1-1/2" DIA	P/S	4"	–	53	111'-4"	8"	7'-0-1/4"
25	DOCKING PLUG	1-1/2" DIA	S	–	8"	98	20'-4"	10'-1/2"	7"
26	DOCKING PLUG	1-1/2" DIA	S	–	8"	77	62'-4"	0'-0"	6"
27	DOCKING PLUG	1-1/2" DIA	S	4"	–	69	79'-4"	8-1/2"	5'-0"
28	DOCKING PLUG	1-1/2" DIA	P	4"	–	69	79'-4"	8-1/2"	5'-0"
29	BOW THRUSTER TUNNEL	10'-6" X 5'-8"	P/S	–	1"	16	184'-11"	5' – 0"	34-1/2"
30	ANODE	6" DIA	P/S	10"	–	25	167'-10"	4'-6"	7'-0"
31	ANODE	6" DIA	P/S	–	8"	92	32'-4"	10'-0"	13'-8"
32	ELECTRODE	6" DIA	S	–	12"	75	66'-0"	5'-0"	8'-6"
33	ELECTRODE	6" DIA	P	–	12"	103	10'-0"	12'-0"	6'-6"

GENERAL NOTES

1. DRAFT MARKS : ARABIC NUMERALS REPRESENT CALCULATIVE DRAFT MARKS.
2. DIMENSIONS :
   - A. LONGITUDINAL LOCATIONS OF ALL ITEMS ARE GIVEN FROM THE STERN REFERENCE POINT (SRP) WHICH IS THE AFTERMOST POINT ON THE HULL AT THE CENTERLINE OF SHIP.
   - B. HEIGHTS OF ALL ITEMS ARE GIVEN FROM THE BOTTOM OF THE KEEL AMIDSHIPS EXTENDED.
   - C. LONGITUDINAL LOCATIONS AND VERTICAL HEIGHTS OF SIDE BLOCKS ARE FROM THE AFTER SIDE OF THE BLOCKS.
   - D. DIMENSIONS FOR SIDE / BILGE KEEL BLOCKS SHOWN IN TABLES ARE IN FEET, INCHES AND SIXTEENTHS.
3. BLOCKING : ARRANGEMENTS DEPICTED ON THIS PLAN REFLECT THE FOLLOWING DESIGN CONDITIONS.
   - A. DOCKING DISPLACEMENT OF 1,803.0 LONG TONS, 0.11 FT TRIM AFT AND ZERO HEEL.
   - B. KEEL BLOCKS DIMENSIONS ARE 30" (FORE / AFT) X 24" (ATHWARTSHIP) ON 6'-0" CENTERS, SUPPORTING 100% OF DOCKING DISPLACEMENT.
   - C. SIDE / BILGE KEEL BLOCKS ARE 18" (FORE / AFT) X 30" (ATHWARTSHIP) ON 8'-0" CENTERS, SUPPORTING 10% OF DOCKING DISPLACEMENT PLUS OVERTURNING MOMENT GENERATED SEISMIC LOADING.
   - D. MAXIMUM BLOCK PRESSURE OF 370 PSI.
   - E. MINIMUM HEIGHT OF 5'-0" ABOVE DOCK FLOOR WILL BE MAINTAINED, WITH DIMENSION BEING TAKEN FROM BOTTOM OF KEEL AMIDSHIP.
   - F. SOFTWOOD CAPS, 2" MINIMUM THICKNESS, ARE REQUIRED FOR ALL BLOCKS.
   - G. DOCKMASTER SHALL BE RESPONSIBLE FOR DETERMINING BLOCKING ARRANGEMENT FOR ALTERNATE CONDITIONS, AND FOR PROVIDING ADDITIONAL BLOCKING OR SHORING WITH RESPECT TO SEISMIC AND / OR HURRICANE LOADS.
   - H. KEEL AND SIDE BLOCKS ARE NUMBERED FROM AFT TO FORWARD WITH THE AFTERMOST BLOCK IDENTIFIED AS BLOCK #1.
   - I. SIDE BLOCKS SHALL BE BUILT-UP AS INDICATED IN THE TYPICAL SECTIONS AND SHALL BE ADEQUATELY CRIBBED OR SHORED IN A FORE AND AFT DIRECTION TO PREVENT THE POSSIBILITY OF OVERTURNING THE BLOCKS.
   - J. DIRECTION OF BEVEL ON BLOCKS IN 18" IS INDICATED AS (–) FOR DOWN AND (+) FOR UP FROM THE HEIGHTS GIVEN OF THE AFTER SIDE OF THE BLOCKS IN THE TABLE OF OFFSETS.
4. COMPLETE PAINTING OF THE UNDERWATER HULL :
   - A. IN ORDER TO CLEAN AND PAINT THE ENTIRE BOTTOM OF THE HULL IN TWO SUCCESSIVE DOCKINGS, THE FOLLOWING POSITIONS OF THE VESSEL, IDENTIFIED AS "A" AND "B" ARE NECESSARY.
   - B. POSITION "A": SRP (STERN REFERENCE POINT) IS PLACED 83'-4" AFT OF NO.1 SIDE BLOCK. SIDE BLOCKS FOR POSITION "A" ARE INDICATED UNDER PORT LONGITUDINAL BHD / GIRDER; STBD SIDE, NOT SHOWN, IS OPPOSITE. KEEL BLOCKS FOR POSITION "A" ARE AS SHOWN AND ARE LOCATED 27'-4" FWD OF SRP.
   - C. POSITION "B": SRP (STERN REFERENCE POINT) IS PLACED 86'-4" AFT OF NO.1 SIDE BLOCK. SIDE BLOCKS FOR POSITION "B" ARE INDICATED UNDER STBD LONGITUDINAL BHD / GIRDER; PORT SIDE, NOT SHOWN, IS OPPOSITE. KEEL BLOCKS FOR POSITION "B" ARE 30'-4" FWD OF SRP.

D THIS DWG. SUPERCEDES T-ATF 169-085-6246103

BEARING ON BLOCKS

SUPPORT	BEARING AREA ON SHELL PLATE	
22 KEEL BLOCKS 30" X 24" 5.0 SQ FT	110.0 SQ FT	15,840 SQ IN
14 SIDE BLOCKS 18" X 30" 3.75 SQ FT	52.50 SQ FT	7560 SQ IN
KEEL BLOCK BEARING PER SQ FT (SEE NOTE 3-B)	9.37 TONS	
KEEL BLOCK BEARING PER SQ IN (SEE NOTE 3-B)		145.70 LB
BILGE BLOCK BEARING PER SQ FT (SEE NOTE 3-C)	10.90 TONS	
BILGE BLOCK BEARING PER SQ IN (SEE NOTE 3-C)		169.48 LB
DOCKING DRAFT 12.87 FT DISPLACEMENT – 1,803 TONS WIND & RESIDUAL HEEL REACTION – 292.73 TONS		4,038,720 LB 655,704 LB

NOTE: BEARING PRESSURE IS BASED ON DOCKING POSITION "B", DOCKING POSITION "A" BEARING PRESSURE IS SLIGHTLY LOWER.

DOCKING POSITION	FIRST KEEL BLOCK FROM SRP	FIRST SIDE BLOCK FROM SRP
DOCKING POSITION "A"	27'-4"	83'-4"
DOCKING POSITION "B"	30'-4"	86'-4"

CRITICAL DIMENSIONS

FRAME SPACING : 24" THROUGHOUT

△ LOCATION OF S.R.P. : 207.00 [FT] AFT OF F.P.

LENGTH BETWEEN PERPENDICULARS	195'-0"
LENGTH DESIGN LOAD WATERLINE	204'-0"
LENGTH OVERALL	226'-0"
BREADTH, MOLDED, AMIDSHIPS	42'-0"
DEPTH, MOLDED, TO MAIN DECK	20'-0"
FULL LOAD DISPLACEMENT	2,260 LTSW
GROSS TONNAGE	965 ABOUT

REVISIONS

REV	ZONE	DESCRIPTION	DATE	APVD
A	7-G, 10-G	MODIFIED TABLE OF OFFSETS TO REFLECT 18"X30" BLOCKS	10/03	
	4-C	MODIFIED BLOCK SIZE TO REFLECT 24" KEEL WIDTH		
B	7-G, 10-G	CORRECTED TABLE OF OFFSETS	1/09	wmr
	4-A, 9-D	CORRECTED SRP LOCATIONS IN LIST OF OPENINGS BASED ON MEASUREMENTS TAKEN ON USNS SIOUX AT CASCADE GENERAL, PORTLAND OR. REVISED DISTANCE FROM SRP TO FP.		
	SH-3	RE-PLOTTED ITEMS BASED ON AS MEASURED DISTANCES.		

APPLICABLE SHIPS

NAME	NO.	DESIGN TYPE
USNS NAVAJO	T-ATF-169	T-ATF-166

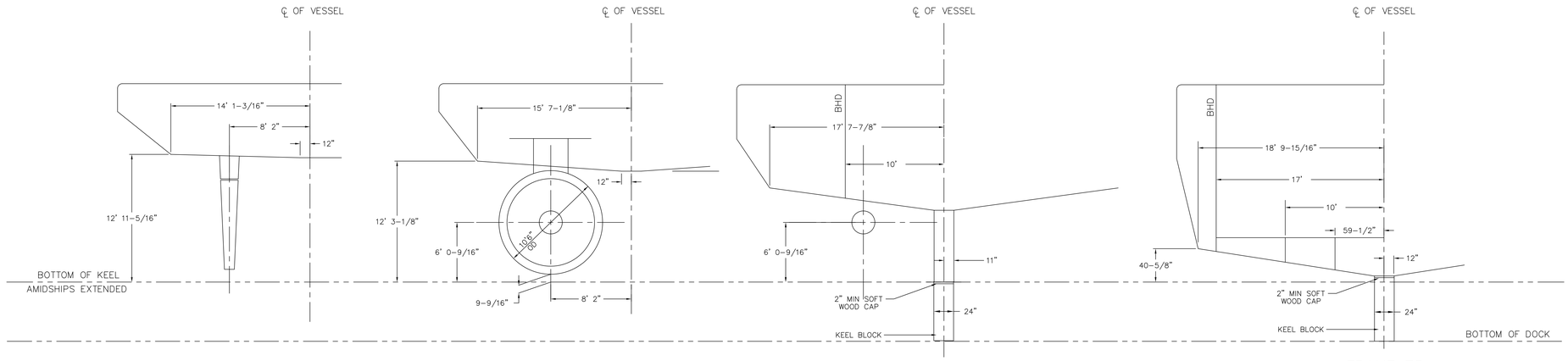
3	2	1	SH	REV STATUS
B	B	B	REV.	OF SHEETS

085-7489831

NO.	PLAN NO.	TITLE
3	T-ATF 171-085-4839510	DOCKING PLAN FOR USNS SIOUX
2	T-ATF 166-845-4842709	T/S BOOKLET FOR USNS POWHATAN
1	T-ATF 166-802-6629426	DOCKING PLAN CALCULATIONS FOR USNS POWHATAN

REFERENCES

AMSEC LLC NAVAL ARCHITECTS & MARINE ENGR WASHINGON, DC 2003	P. HANDLER 3/3/04 PROJECT ENGINEER DATE R. A. ANDERSON 3/3/04 HEAD NAV ARCH BRANCH DATE J. GLADSON 4/12/04 DIRECTOR TECH DIV DATE	DEPARTMENT OF THE NAVY MILITARY SEALIFT COMMAND WASHINGTON D.C. 20398
CAGE CODE 9F230	J. GLADSON 4/12/04 ENGR OFFICER DATE	
DRAWN DATE	J. GLADSON 4/12/04 APPROVED FOR COMMANDER MSC DATE	DOCKING PLAN (NORMAL) FOR USNS NAVAJO T-ATF-169
CHECKED DATE		
REVIEWED DATE		
APPROVED FOR AMSEC LLC DATE		SIZE H; CAGE CODE 94421; MSC DRAWING NO. 085-7489831; REV. B SCALE: ; SHEET 1 OF 3



FRAME 104

WT BHD
LOOKING AFT
SCALE : 1/4" = 1' - 0"

FRAME 100

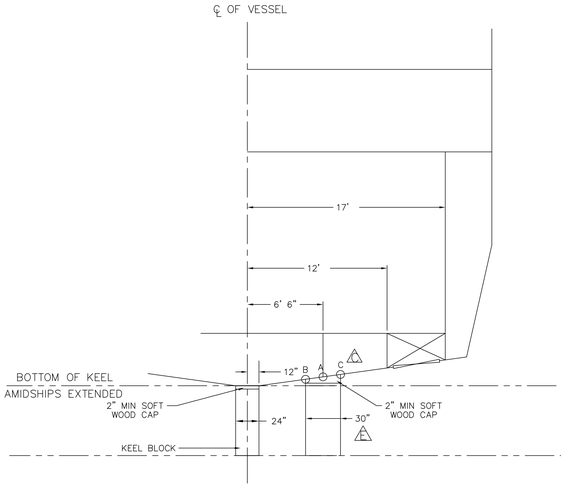
NT BHD
LOOKING AFT
SCALE : 1/4" = 1' - 0"

FRAME 90

OT BHD
LOOKING AFT
SCALE : 1/4" = 1' - 0"

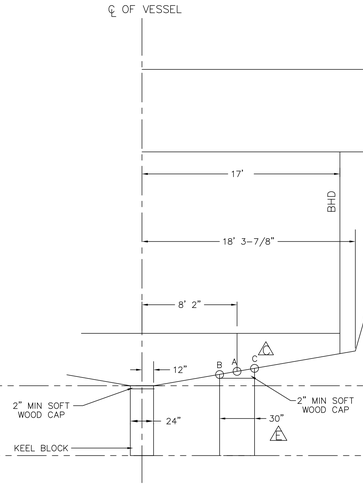
FRAME 75

OT BHD
LOOKING AFT
SCALE : 1/4" = 1' - 0"



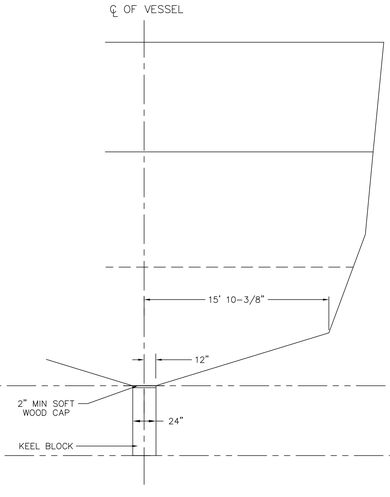
FRAME 55

OT BHD
LOOKING FWD
SCALE : 1/4" = 1' - 0"



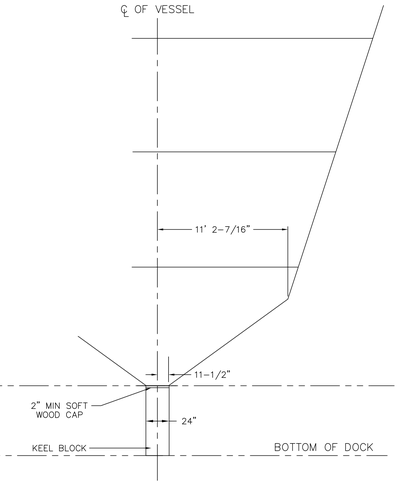
FRAME 40

OT BHD
LOOKING FWD
SCALE : 1/4" = 1' - 0"



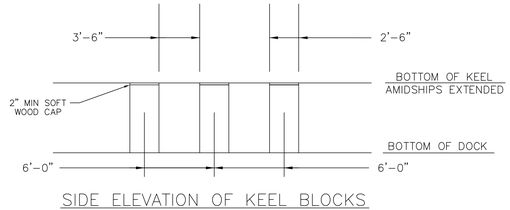
FRAME 29

WT BHD
LOOKING FWD
SCALE : 1/4" = 1' - 0"



FRAME 21

LOOKING FWD
SCALE : 1/4" = 1' - 0"

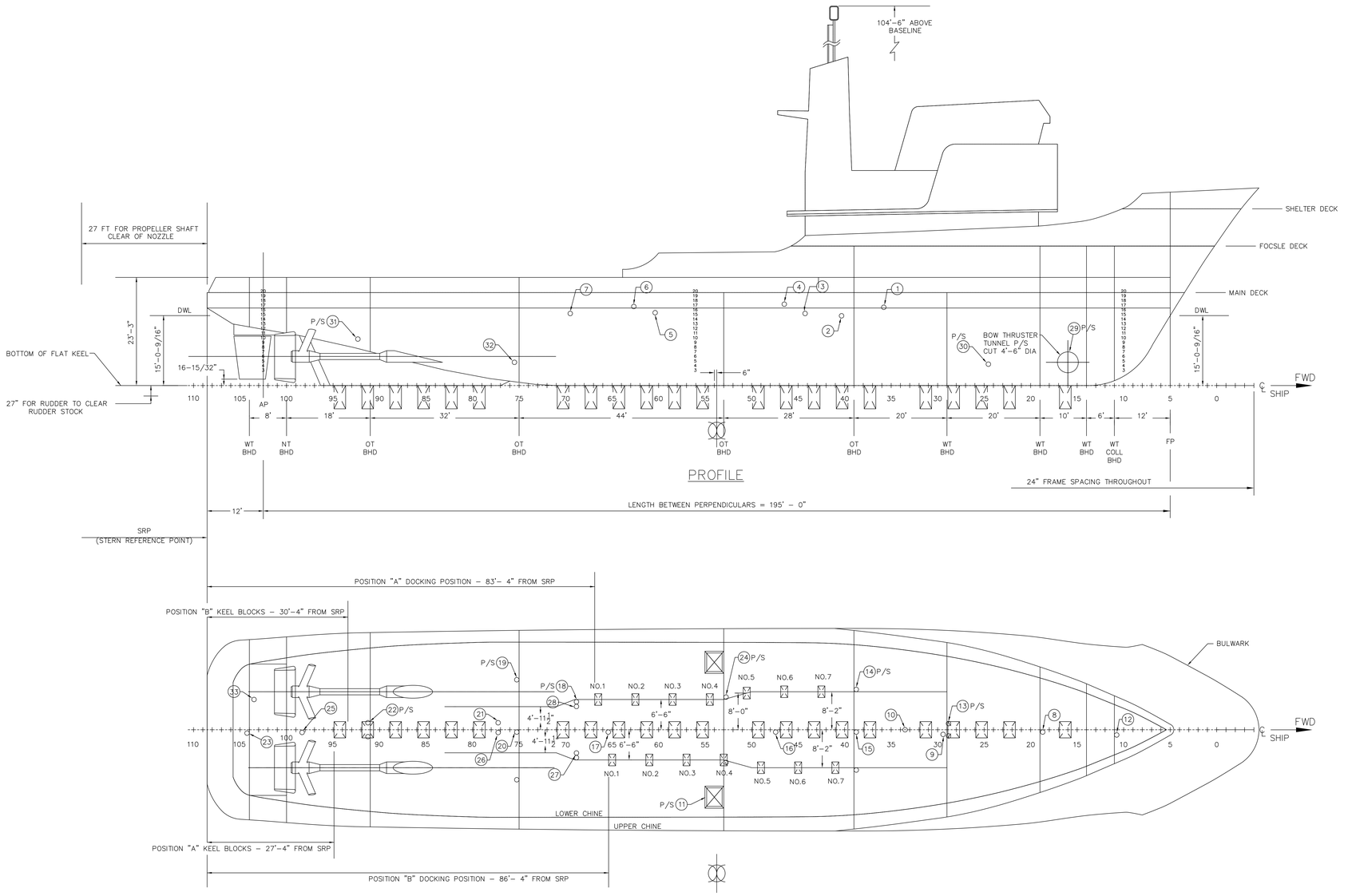


SIDE ELEVATION OF KEEL BLOCKS
SHOWING SPACING

SCALE : 1/4" = 1' - 0"

DRAWN	SIZE	CAGE CODE	MSC DRAWING NO.	REV.
	H	94421	085-7489831	B
ISSUED	SCALE: 1/4" = 1'-0"			SHEET 2 OF 3

MSC NO 085-7489831 REV B SH 2



PROFILE

BOTTOM PLAN

DRAWN	SIZE H	FSCM NO 94421	DWG NO 085-7489831	REV B
ISSUED	SCALE: 1/8"=1'-0"		SHEET 3 OF 3	